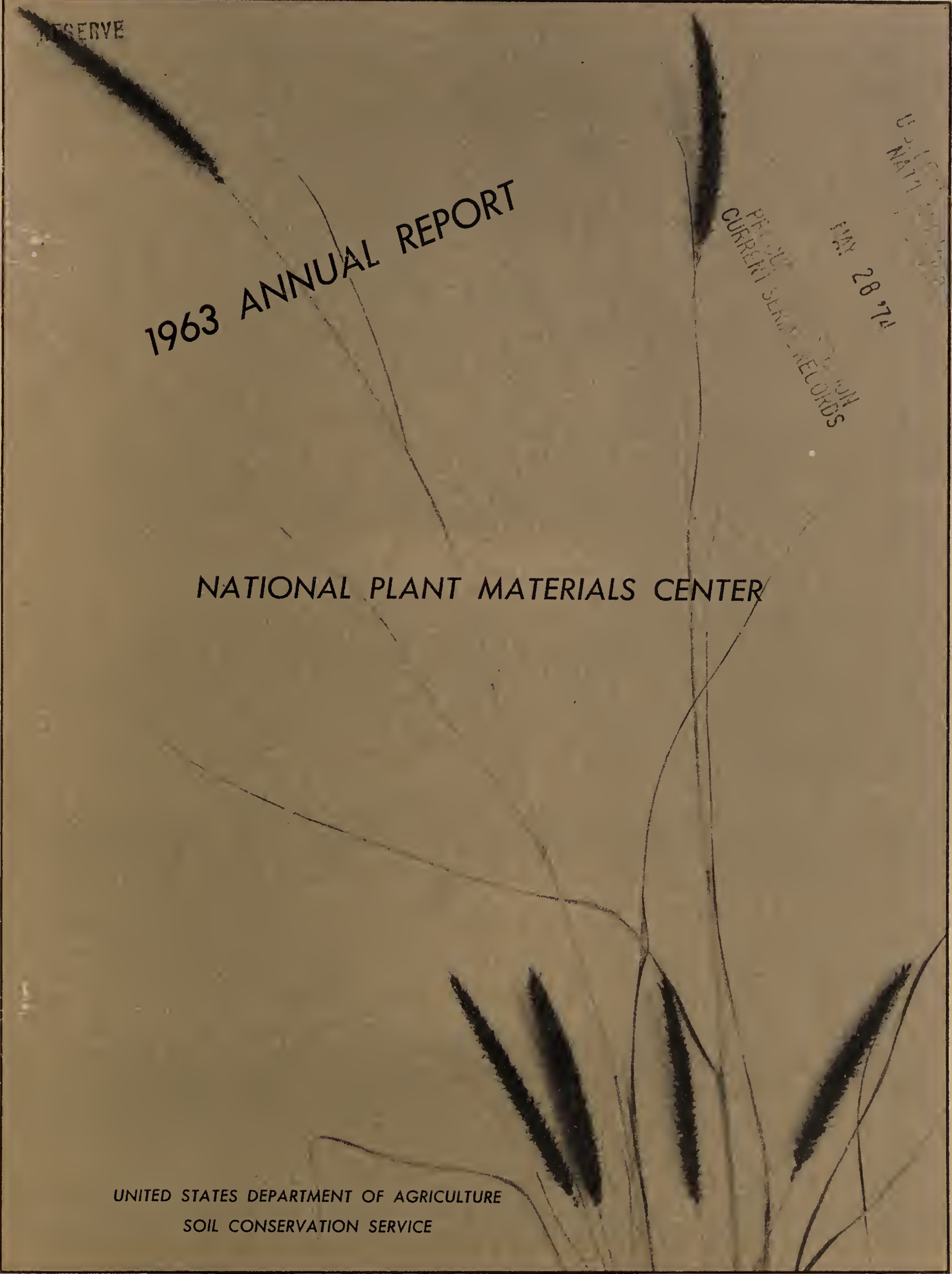

1963 ANNUAL REPORT

NATIONAL PLANT MATERIALS CENTER

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

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ORGANIZATION OF THE

SOIL CONSERVATION SERVICE
NATIONAL PLANT MATERIALS CENTER
Agricultural Research Center
Beltsville, Maryland

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United States Department of Agriculture
Soil Conservation Service
National Plant Materials Center
Beltsville, Maryland

INTRODUCTION

The National Plant Materials Center, one of eighteen plant testing units operated by the Soil Conservation Service of the U. S. Department of Agriculture, occupies approximately 300 acres of the Agricultural Research Center at Beltsville, Maryland.

The Research Center lies at the junction of the Coastal Plain and Piedmont regions of Maryland, and soils of the area are characterized as a mixture of those common to these regions. The average temperature for January is 34° F., and the average July temperature is 75.8° F. Periodically, winter temperatures drop to 10° to 15° below zero F. Rainfall averages about 42 inches per year with equal distribution during the growing season. Normally there is a slight drop in monthly precipitation during October November, and December; otherwise rainfall averages between 3 and 4 inches each month.

Temperatures during the winter of 1963-1964 were average, and for the third consecutive year, precipitation was under normal for the area. April saw the most severe drought since 1942. The months of May and July had approximately one-half of normal precipitation. Such rains as came in July and August were not effective; the first good rain received during the summer months fell on August 20th. No rain was received during the month of October. The irrigation system was used on the fields within reach of the portable lines, the rest of the fields suffered. As a result seed yields fell below normal, particularly on the larger increase fields of Panicum and Lespedeza species.

NEW ACCESSIONS

The flow of new accessions maintains a rather even pace, with 1,400 received in 1962 and about 1,200 in 1963. The greater number of items by far was received through the good offices of New Crops Research Branch, ARS. Accessions of bush-type Salix species were received from the Morton Arboretum, the University of Washington Arboretum and a German Forestry Experiment Station. Other items were received from State Experiment Stations and the Forage and Range Research Branch, Beltsville. In addition, we received collections of items by SCS plant materials technicians.

Extensive collections of Brachiaria, Lathyrus, Lupinus, Panicum, Vicia and Mediterranean climate legumes were made; also sizeable additions were made to Lespedeza and Onobrychis collections. Arrangements were made for shipment of virus-free strains of Vigna sinensis to the Idaho plant materials Center from the Regional Plant Introduction Station, Experiment, Georgia,

these to be tested for wildlife food and habitat improvement. More perennial peanuts (Arachis spp.) were made available for testing in the southern plant materials centers.

A total of 118 genera was represented in the additions, and a number of species in each genus was included.

PRODUCTION AND DISTRIBUTION

Final distribution of American beachgrass (*Ammophila breviligulata* Fern.) was made during the fall of 1963 and spring of 1964. This amounted to nearly half a million culms. Effective work by the Washington-Field and field plant materials technicians working through the respective State Conservationists and local Soil Conservation Districts resulted in establishment of commercial nurseries for the production of American beachgrass in the states of New Jersey, Maryland, Delaware, Virginia and North Carolina.

Although vegetative increases at the commercial nurseries were highly satisfactory, and in many cases spectacular, we are at present entering into the second phase by selecting superior strains. For instance, single culms planted in the fall of 1962 in New Jersey and North Carolina were dug and shipped in the fall of 1963 for planting on dune sites.

'Tufcote' bermuda is getting more publicity in various magazines and periodicals. It is now under test at the following plant materials centers and experiment stations:

- SCS Plant Materials Centers
  - Arcadia, Florida
  - Coffeeville, Mississippi
  - Big Flats, New York
  - Elsberry, Missouri
  - Rose Lake, Michigan
  - Manhattan, Kansas

- Experiment Stations
  - Kansas State University
  - Michigan State University
  - University of Maryland
  - Ohio State University
  - Oklahoma State University
  - University of Southwestern Louisiana
  - Rutgers University
  - University of Rhode Island
  - University of Massachusetts
  - University of New Mexico (Artesia sub-station)
  - Auburn University
  - University of Florida
  - Iowa State University
  - Texas A & M University
  - North Carolina State University

- Other
  - National Arboretum, Washington, D.C.

Despite the prolonged drought and severe shortage of rainfall, the foundation block of 'Tufcote' received only one irrigation during the summer of 1963, showing moderate signs of distress.

Domestic distribution of seed packets exceeded 2,600, with fair distribution to all regions except the Great Plains. Shipments to the Southeast are overly heavy, due to a massive collection of vetches.

Fifty-five countries were sources for our new accessions during the year and twenty-five countries received shipments from us to the extent of 557 packets.

Most of the material shipped vegetatively was the American beachgrass. Other than this small quantities of some forty other accessions were distributed.

SCS-NAVY COOPERATIVE STUDIES

The cooperative study on ground cover plants is being drawn to a close and will be summarized at the end of this season's growing period. This study will not be dropped entirely, as more time is required on certain species to clearly read persistence under minimum management. Also, new and promising groundcover plants will continue to be added to the present plantings, even though concentrated study and assembly will cease. Some of the material may be looked at again on the basis of recreational usefulness and adaptability.

An additional cooperative study with the Department of the Navy covers germination procedures, selection of superior clones, and nursery management studies on American beachgrass. With the assistance of plant materials technicians, this study will be further expanded to include dune fertilization and planting techniques on the dunes.

OTHER PROJECTS

In the spring of 1964 a herbicide/weed-control test on American beachgrass will be initiated, carried out cooperatively with Dr. Harold D. Kerr, ARS. The study will include nine different formulations and will involve grassy and broad-leaved weeds.

Now that the pressures are relieved on American beachgrass, studies are being initiated on a second plant which may find considerable use in dune stabilization. It is a Japanese sedge, Carex kobomugi Ohwi. Seed of this species was secured from Japan, and is now undergoing germination tests. Initial tests indicate that from 45 to 60 minutes of sulphuric acid are required to stimulate germination. Limited tests on pre-planting storage at 38° to 41° F. indicate that the periods presently tried are ineffective. We are still getting a spread-out germination period lasting from six to seven weeks. This work will continue. In addition, transplanting studies, rate of increase and fertilizer response trials will be initiated. The first increase block is established, and stock for actual dune plantings should be available in limited quantities during the spring of 1965 and 1966.

Work is still being continued on the selection of a large-seeded strain of Carthage switchgrass. The original field run gave us 35% large seed and after two years, we have increased this to approximately 70%, despite the ravages of drought. These studies will be continued and the final progeny re-run.

Since reports by field plant materials technicians indicate that Indiangrass is acting as a pioneer species on mine spoil and similar sites, an assembly of named strains was made and planted in the spring of 1962. Evaluation at the end of 1963 indicated that five strains performed very satisfactorily in this area, compared with a strain native to the locality. These are: Cheyenne, Conejo, Ford, KG-494, and Pawnee. We would have to give Cheyenne a slight edge over the other four insofar as the rod row plantings could be judged. Actual field trials might change the selection. Practically all of the accessions tested out-performed the native Maryland selection.

Projects involving crownvetch strains, decumbent and prostrate Lespedeza strains, hardy strains of bahiagrass, black locust clonal selections, mowing blocks of groundcovers and zoysias, and the assembly of bush-type <u>Salix</u> spp. will continue.

NOTES

Please note that there is a special list of items grown for seed renewal included in this report, for which performance notes are not included.

There are no changes in nomenclature included, although many identifications and re-identifications have been made, based on herbariums submitted. These are incorporated in the report.

We are pleased to report that a new seed storage room has been completed and is in operation. It has a capacity for approximately 7,000 normal sized packets. Humidity is controlled at 40%, and temperature at 50° F.

Last year we cooperated with the Washington Action for Youth summer employment program, taking on ten boys from the streets of Washington. Much good work was accomplished and the nursery grounds are better for having had them. The 1964 summer season will see a repeat of last year's WAY program.

* * *

NOTES & COMMENT

GRASSES

Agropyron cristatum (L.) Gaertn. 2n = 14

PI-277352, USSR. Not an outstanding accession in this climatic zone. Severe leaf disease in humid conditions. No distribution.

PI-281862, Germany. Looked very good here. Moderate leaf disease and abundant fall regrowth. No distribution.

Agropyron junceum (L.) Beauv.

PI-281863, Germany. A highly rhizomatous, leafy, early-recovering accession. One of the best here. Should be considered for erosion control and cool season pasture work in other centers. Species is a pioneer of coastal and desert sand dunes in Europe, North Africa and western Asia. Seed of this accession reproduced here went to the New York plant materials center.

Agropyron desertorum (Fisch.) Schult.

PI-277354 came to us as *A. sibiricum*. Performed fairly well but as is the case with most of the USSR material, suffered some disease. BN reproduced seed to the New York PMC.

Agropyron sibiricum (Willd.) Beauv.

PI-281864, Germany. Perfectly hardy; abundant foliage. Failed to set seed in the first full growing season. A fairly good fine-leafed accession, but severely affected by disease. No distribution.

Agropyron trachycaulum (Link) Malte

PI-281865, Germany. Abundant leaves with moderate disease; made good fall recovery, but did not set seed in year following fall planting. Not distributed.

Agrostis alba stolonifera Sm. 2n = 28

Second trial with PI-269838 gave us a two-foot spread and a small seed increase. Tests should be confined to wet lands in cool climate, similar to the marshlands of Germany where it was selected. Original seed of this went to the New York, California and Oregon plant materials centers.

Alopecurus arundinaceus Poir.

BN-11165 - Moderately rhizomatous; moderately abundant fall recovery. Original seed distributed to Oregon PMC.
BN-11166 - Not rhizomatous; abundant fall recovery. Original seed to Oregon PMC; Vegetative material and BN-reproduced seed to New York.
BN-11167 - Very rhizomatous; moderately abundant fall recovery. Original seed to Oregon.
BN-11168 - Not rhizomatous; abundant fall recovery. Original seed to Oregon, BN reproduced seed to New York.
BN-11210 - Slowly rhizomatous; moderately abundant fall recovery. Original to Oregon.
BN-11909 - Moderately rhizomatous; sparse fall recovery.

Refer to charts for additional information on these accessions.

Alopecurus pratensis L. 4n = 28

Most of the information covering this species is shown in another section of this report. Also, refer to the 1962 Annual Report for information concerning the remainder of the large Netherlands shipment. Some of these accessions lean more toward A. arundinaceus, as shown by the rhizomatous habit.

Andropogon distachyus L.

PI-283181, Portugal, had moderate disease in late July; produced an abundance of leaves. Spreads slowly by short rhizomes; abundant heads but no fill.

Arrhenatherum elatius (L.) Presl.

NY-1797 (original source Hardy County, West Virginia) performed very well here, but suffered severe leaf spot disease in our more humid climate. Seed production abundant.

Briza erecta Lam.
Briza fusca Parodi
Briza triloba Nees

All of these little quaking-grasses winter-killed from a fall planting. Reseeding them in the spring did not help. The summer heat, drought, and humidity proved too much for them.

Bromus inermis Leyss

FC-36104 'Sac'. Made good forage production but was affected by leaf spot in June. Developed by USDA and Wisconsin Agricultural Experiment Station for the North-Central states. Seed will probably not be available in commercial channels in quantity until 1965 or 1966. Samples of this variety went to Missouri, Michigan, New York, North Dakota and Montana centers.

BN-12091, from Virginia Polytechnic Institute. Strong, heavy foliage plants that lodged severely in 1963. Set abundant seed second year; had some leaf spot. Distributed to Missouri PMC.

Bromus macranthus Desv.

PI-269644 set seed. PI-264401 did not. Both are small perennials from Argentina that overwintered from a fall seeding and passed out late the following spring. The Georgia PMC received original seed of PI-264401; Original seed of PI-269644 went to California and New Mexico.

Bromus mollis L.

PI-283196, Italy, proved to be a prolific seed producer that volunteered readily. Original seed to California.

Bromus stenostachys Boiss.

PI-269877, from West Pakistan, was received as Bromus sp. A poor accession with us.

Cenchrus sp.

One of Harlon's collections out of India (H-1535) has been re-identified as Pennisetum ciliare (L.) Link by Dr. Swallen. Small in stature but two feet wide.

Dactylis glomerata L. 4n = 28; irreg. 27-30

PI-257268, 'Tardus II', Sweden. Good vegetative growth with less disease than the average. Original seed of this variety went to Michigan, New York and Washington centers.

PI-266226, New South Wales, Australia. Average production and recovery; moderate disease. Slightly later maturing. Original seed to Arizona, California and New Mexico. BN reproduced seed to Missouri and Washington.

A-10655, 'Sandia'. Slightly more vegetative production, average amount of foliar disease. Foundation seed is maintained at Los Lunas, New Mexico center.

PI-270397, USSR. A lower growing, late-maturing, leafy pasture type. Original seed of this to Washington PMC.

Dactylis glomerata v. himalayensis Bor

PI-295271, BN-13765. One of Jack Harlan's collections (H-1237) from India. Perfectly hardy, late, tall, abundant-leaved hay type; produced a good crop of seed. Distributed to Idaho, Michigan, Montana and New York.

Deschampsia flexuosa (L.) Trin.

PI-283244, 283245, 283246. All three of these from France struggled through the late spring from an early May transplanting and died without bloom.

Digitaria herpoclados Pilger

PI-281738 came in as vegetative material from Taiwan, and was shipped to the Florida plant materials center. The rhizomatous and stoloniferous habit of this plant might give it a place in the warm climates, if it doesn't turn weedy.

Digitaria cf. setivalva Stent.

PI-284543, South Africa. Long stolons, tall, leafy, almost too vigorous. Set seed at Beltsville. Original seed went to Florida PMC as Digitaria sp.

Digitaria smutsii Stent.

Basic information on the species shown in 1962 Annual Report. PI-284542, out of Rhodesia, made its growth early but set seed over a long period. Original seed of this accession went to Florida; BN-reproduced seed to Hawaii.

Digitaria valida Stent.

Native to South Africa, is a coarser and more robust grass than D. pentzii but closely related to it. PI-258442 (Middelburg strain) and 258443 (Witbank strain) from South Africa, were of a size, but the latter matured a month earlier. Original seed of both accessions went to Florida in 1959.

Digitaria sp.

PI-284544 out of Rhodesia grew tall, leafy and covered a lot of ground, with stolons to 36 inches long. Could possibly go wild if it found the right climate. Florida received some of the original seed in 1963, Hawaii in 1964.

Echinochloa polystachya (H.B.K.) Hitchc.
Usually found in water and along marshes and ditches near the coast, Mexico. Rhizomatous, perennial, poor seed producer, coarse and hispid. PI-283157 from Mexico was sent as vegetative material to the Florida plant materials center.

Elymus sabulosus Bieb. P-11599
This highly rhizomatous accession received from Pleasanton, California proved perfectly hardy, and produced a good amount of harsh foliage. A sand dune grass native to Central Europe sea coasts. Sand binder and forage. A recent Russian publication names this E. giganteus Vahl. We sent BN-reproduced seed to the New York center.

Elymus sp.
PI-269646, Argentina. Four plants plunged in the cold frame in November lived over winter. This is a stemmy accession with few leaves; value is undetermined. A packet of the original seed went to California.

Festuca arundinacea Schreb.
PI-269376, Afghanistan, made good spring and fall recovery; was fairly low growing. Showed rhizomatous development and potential for grassed-waterway work.

Festuca sp. (is arundinacea) 'Artren' F-1079
This leafy accession has done very well in Florida, but failed to set seed there. It proved hardy at Beltsville, and set a small amount of seed from a second bloom period.

Hordeum chilense Roem. & Schult.
Tufted, winter-growing perennial native to Chile. Culms to two feet. Is found along the edges of ditches, seashore and saline seepage spots. Variable in height and maturity. Original seed of PI-283374 through PI-283378 went to California.

Hordeum comosum Presl.
Winter-growing perennial similar to H. chilense, but found in drier sites; inland dunes of Argentina. Original seed of PI-283379 to California.

Ischaemum timorense Kunth 2n = 36
PI-271193 from India was reported in 1962 as Ischaemum sp. Found in the plains and hills of India and Ceylon up to 1500 m. A common, palatable grass of damp, wayside places.

Oryzopsis aequiglumis Duthie
Pots plunged in the cold frame winter-killed here even though this plant is native to the Himalayan Mountain region. Our seed came from plants carried over in the greenhouse.

Oryzopsis coerulescens (Desf.) Hack.
PI-263504 from Israel wintered over in the cold frame and produced a small amount of seed; lacked vigor in our climate. Original seed went to California.

Oryzopsis holciformis (Bieb.) Hack.
PI-263505, also from Israel, winter-killed in hardiness test. Displayed fairly good vigor on those plants moved from greenhouse to field. Original seed was sent to California.

Oryzopsis miliacea (L.) Benth.& Hook. 2n = 24
Tufted, long-lived perennial, cool season. Native to the Mediterranean region, sub-tropical, winter rainfall climate. Resistant to drought. Compatible with *Medicago tribuloides*.

Panicum antidotale Retz. 2n = 18
Basic information on the species given in 1961 Report. PI-284151, out of India, is a very vigorous accession exceeding five feet in height and maturing an abundance of seed. BN-reproduced seed went to Arizona, California, Hawaii, Mississippi and Missouri plant materials centers.

Panicum maximum Jacq. 'Sabi' strain. PI-282454
Produced seed during the month of August as compared to previous accessions. Is as big as they come; seed of low fill here. Original seed obtained from the Grasslands Research Station, Marandellas, S. Rhodesia, went to Florida and Hawaii.

Pennisetum ciliare (L.) Link
Eight new accessions of buffelgrass which should be added to collections of this species:

PI-284828 (S. Rhodesia) - Fair vegetative production, short rhizomes, slightly shy on leaves.

PI-284829 (S. Rhodesia) - A very tall, leafy, high producer; vigorous bunchgrass.

PI-284831 (S. Africa) - Less vigorous, fewer leaves than the average.

PI-284832 (Sudan) - Medium height, fair production, short rhizomes.

PI-284834 (Morocco) - Geniculate stems, roots at nodes close to plant. Good, moderately productive bunchgrass.

PI-284835 (India) - One of the best. Strongly rhizomatous. A big forage producer; tall, leafy and spreading.

PI-284836 (Pakistan) - Nothing outstanding about this fairly small, low production bunchgrass - except maybe drought tolerance.

BN-13576 - A BN selection out of PI-185564 from South Africa, made very good growth by the end of June. Tall, very heavy production of fine leaves, rhizomatous.

Distribution of the above: (BN reproduced seed) PI-284828, 284829, 284832, 284834, 284835, 284836 to Arizona, Florida, Hawaii, Mississippi, Missouri

PI-284831 to Mississippi and Florida

BN-13576 to Puerto Rico.

Pennisetum sp.

BN-13577, a contaminant ex BN-11664 (Oryzopsis aequiglumis from India), turned out to be Pennisetum ciliare (L.) Link. Abundant leaves, moderately tall, good rhizomatous spread. Our seed went to Arizona, Florida, Hawaii, Mississippi and Missouri.

Phalaris aquatica X P. arundinacea

Two selections were made out of BN-10777 from England. BN-12103 was assigned the seed from the moderately tall plants that averaged 35-17x13. BN-12104 was assigned the seed collected from the tall plants averaging 59-33x14. Both these BN numbers were planted in 1962 and rogued to type in 1963; both had essentially retained the desired characteristics. BN-12103, moderately tall type, retained the leafiness and spreading characteristics of P. arundinacea, and yet did not appear to be as adversely affected by the summer heat and drought as the average P. arundinacea. Seed has been collected from both these accessions and will be planted back to see if the types hold true to form. Neither has been distributed.

Phleum pratense L. 2n = 14; 6n = 42

PI-270401, an abundantly leaved timothy out of Russia, made a fairly strong showing and suffered only moderate disease.

Poa pratensis L. 'Newport'

Made early spring and fall recovery of fairly tall leafy foliage, but was a little slow on the comeback following a clipping in early May. Only slight leaf disease.

BN-13766, ex H-824-A, was a fairly small, moderately-abundant leaved, rhizomatous species that was short on density and overall vigor. One of J. Harlan's collections out of India. Herbarium had to go abroad for identification as P. pratensis. The Idaho and Washington Plant Materials Centers received this as Poa sp.

Sehima ischaemoides Forsk.

H-1599, received as Sehima sp. Native to tropical Africa, Nileland, tropical Arabia, Bombay and South India. A good fodder in sub-desert areas where it springs up in sand in the rainy season. No distribution.

Sorghum vulgare Pers.

The following sorghums from North Dakota were compared for ability to stand erect during the winter and provide food for wildlife:

'Carman', Mandan 304. Heads to 8 in. long, 90% of the seed stalks broken, heads eaten by mice by mid-November.

'Midak', Mandan 327. Heads to 10 in. long, 75% of the heads on the ground and eaten by mice and birds by mid-November. All broken over by February 1.

'Norkota', Mandan 323. Heads to 8 in. long, all standing and holding seed mid-November. Broken stalks and heads on the ground by February 1. Some use by birds, but mice had eaten most.

Spartina townsendi H.&J.Groves

PI-260792. Vegetative material sent to Louisiana could not compete with the native plants. This species is used in England and France to stabilize coastal, saline mud flats, especially along mouths of harbors.

Stipa spp.

The following accessions from Argentina were tried for the second time. They again died without bloom in our humid climate:

PI-264408	*Stipa diegonensis* Swallen
PI-264410	*Stipa ibari* R.Phil.
PI-281601	*Stipa neaei* (Nees) Steud.

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NOTES AND COMMENT

LEGUMES AND OTHER

Adesmia smithiae DC.

An annual found on roadside cuts in the 16 in. rainfall area of Chile. PI-283159 from South America via Australia, produced seed in the greenhouse; shattered excessively. Original seed of this accession went to the Hawaii and California plant materials centers.

Anthyllis vulneraria L. Kidney vetch.

A deep-rooted, drought-resistant, short-lived perennial that grows well on poor sandy or calcareous soils. Northern temperate zones of Europe, Asia, and North America. Flowers reddish.

Astragalus sinicus L.

A wet-land, short-lived perennial; rhizomatous. Usually fall planted in rice fields in China. Original seed of PI-258377 from Taiwan, went to Hawaii in 1959.

Clitoria ternatea L. Kordofan pea.

Used as a cover and green manure in tropical and sub-tropical climates; leaves and pods grazed by livestock. A twining perennial, it is usually grown with a support crop for seed production. Uneven ripening makes seed harvesting difficult.

Coronilla glauca Jusl.

Tender perennial. PI-283239 from Portugal didn't bloom; withstood first frost in late September, but winter-killed. Semi-woody.

Crotolaria sp.

PI-275321 out of India had severe leaf disease and died without bloom.

Desmodium intortum (Mill.)Urb.

A stoloniferous, low-growing, tender tickclover that produced a large amount of vegetation for green manure. Readily eaten by deer. Did not bloom here. Hawaii has worked on strain selections of this species.

Desmodium triflorum (L.) DC.

A mat-forming perennial producing good fodder in hot climates. Planted as a cover plant in rubber plantations in Malaya, Indonesia and Ceylon. Possible use in orange groves in Florida, Hawaii and Puerto Rico.

Dorycnium rectum (L.) Ser.

PI-274460 was received as Lotus sp. from Greece; performed almost as well as PI-238291 from Portugal, but had to be vernalized in the cold frame before it set seed. Not winterhardy at the Ames, Iowa Plant Introduction Station, or here. No distribution.

Galega officinalis L.
Used mostly for soil improvement and as a bee plant in Southern Europe and Germany, on acid, clay or sandy soils low in organic matter. Has limited use as a forage plant as it is somewhat toxic at certain stages, and because of its bitter taste. PI-283238 from USSR was received as Coronilla coronata. BN reproduced seed went to the New York plant materials center.

Hosackia subpinnata G. Don.
A vigorous, pubescent, prostrate annual from Chile. Self-pollinated, with very dehiscent pods. Found in rainfall areas from 4 to 40 in. Original seed of PI-283469 went to Arizona, California and New Mexico.

Lotus conimbricensis Brot.
PI-283616, Sweden. A prolific seeder; non-dehiscent, cool annual, native to sandy soils or grassy slopes in the coastal Mediterranean region. No distribution.

Lotus conjugatus L.
PI-283617, Hungary. Another leafy, low-growing, non-dehiscent annual from the Mediterranean region. Reportedly likes sandy soils. No distribution.

Lotus cytisoides L.
PI-283626, France, held up well until early December, but failed to show any spring recovery. The species is native to Europe, found on sea coasts, shores of lakes, and sandy soils. Part of our original seed of this accession went to the Southeast.

Lotus hispidus Desf.
PI-283615 - a dense, mat-forming, prostrate annual from Hungary. Produced an abundance of seed and volunteer seedlings which germinated in August.

PI-283630, also from Hungary, did not set seed here from a spring planting. No distribution made of either accession.

Lotus maroccanus Ball
PI-283628, 283629 from Morocco. Two non-dehiscent, indeterminate bloom, winter-growing perennials that produced an abundance of low growing leafy vegetation. Palatable to deer and rabbits, stayed green after repeated frosts, but winter-killed here. No distribution.

Lupinus angustifolius L.
Lupinus palaestinus Boiss.
Lupinus reticulatus Desv.
Three fast-growing, quick maturing annuals, native to the Mediterranean region sandy soils. Need testing in the deep south, as winter annuals.

NOTES & COMMENT - Legumes and Other

Medicago arabica (L.) All.
An annual species from the Mediterranean/summer drought, mild winter region. PI-283639 came to us out of Russia via Australia. Principal value as a re-seeding annual pasture plant in areas with Mediterranean climate; also for limited use in the southern states. Original seed was distributed to California and Florida plant materials centers.

Medicago scutellata (L.) Mill. Snail medic.
PI-283659 out of Cyprus produced a good crop of seed as a winter annual in the greenhouse here. Original seed went to New York, California and Florida centers.

Medicago tianschanica Vassilcz.
A perennial occuring only in the mountainous regions of central Asia in forest-shrub zone and in Agropyron-mixed herb steppe. Best trial area would be the Pacific northwest.

Medicago turbinata Willd.
A winter annual out of Iran. Made good vegetative growth; set abundant seed. The spines are not hooked.

Stylosanthes gracilis H.B.K.
PI-258382 from Taiwan, and PI-261266 from Africa made good vegetative growth, but failed to bloom at Beltsville. This species is used for pastures in warm temperate climates on many soil types, both wet and dry. Tolerates acid, but not swampy soils. Original seed of both these accessions was sent to the Florida and Hawaii plant materials centers.

Stylosanthes sundaica Taub.
Used in sub-tropical pastures; needs adequate phosphorus. Is adapted to sandy soils with firm base. Used in Australia and South Africa. Seeding rate is 3 to 4 pounds per acre; is generally not as productive as *S. gracilis*.

Trifolium arvense L.
This vigorous little rabbitsfoot clover came to us as *Trifolium sp.* under PI-284027. Original source Turkey. No distribution.

Trifolium baccarini Chiov.
Tropical high altitudes in association with Kikuyu grass (*Pennisetum clandestinum*). Seed of PI-262233 and PI-268338 has gone to Hawaii, Florida and Puerto Rico centers.

Trifolium burchellianum v. *johnstonii* (Oliv.) Gillet
Native to moist forest margins with an annual rainfall in excess of 1000 mm. yearly, altitude of 1800 to 4000 meters, Kenya, East Africa. Tacks at nodes; did not bloom at Beltsville. Considered to be one of the most cold resistant of all indigenous South African clovers. Original seed of PI-263234 went to Florida, Hawaii and Puerto Rico.

Trifolium cheranganiense J.B.Gillett
Perennial growth in association with Digitaria spp. in fertile open grassland at 2100 to 3000 meters, Kenya, E. Africa. It is interesting to note that all Trifolium species from Kenya and the Belgian Congo started blooming on short days when planted in late September. We sent original seed of PI-262235 to Hawaii, Florida and Puerto Rico.

Trifolium dubium Sibth. Small hop clover.
PI-280260 out of Spain grew to 28 inches wide in the greenhouse, and produced abundant seed. Original seed of this accession to Florida.

Trifolium glomeratum L. Cluster clover.
A low-growing, leafy, winter annual. PI-284268 from South America, grew to 24 inches wide and produced an abundance of seed in the greenhouse. Original seed to Florida PMC.

Trifolium hybridum L. Alsike clover.
The variety 'Tetra', PI-257273 from Sweden, produced an abundance of large, soft leaves and a good crop of seed for us. Is worth comparing with standard varieties in the 'alsike country'. PI-284276 from Turkey also looked like a promising accession. We have made no distribution of these two numbers.

Trifolium lappaceum L. Lappa clover.
PI-284258 came to us as T. echinatum from Israel. Is a moderately leafy Mediterranean annual, adapted to heavy, fertile black soils, and warm conditions. BN reproduced seed of this accession went to the Mississippi and Georgia centers.

Trifolium maritimum Huds.
An annual, native to the Mediterranean region prairies and wet, saline soils. Shallow rooted. BN reproduced seed of PI-284855 went to the Florida and Georgia plant materials Centers.

Trifolium masaiense J. B. Gillett
From the Masai steppe area of Tanganyika. Performed as an annual with us. Is a prolific seed producer; worked by bees. Heads reflexed at maturity. Original seed of PI-262236 from Kenya went to Hawaii, Puerto Rico and Florida.

Trifolium pallidum Waldst. & Kit.
PI-284285 from Algeria failed to set seed for us. BN-10951 looked more promising in 1959, but had tough growing conditions this year; died without setting seed. We sent our 1961 reproduction of seed of the latter to the Florida plant materials center.

Trifolium parviflorum Ehrh.
PI-284299 and PI-284300 made a fair amount of vegetative growth in the greenhouse before maturing and dying as annuals in July. Both came to us as Trifolium sp., the first from Hungary, the other from Sweden. BN reproduced seed of both accessions was distributed to California, Arizona and Georgia PMC's.

Trifolium patens Schreb.
PI-284286 from Denmark matured in the field in May and June after growing to 20 in. wide. Normally native to the moist, humid regions of southern Europe and the western Mediterranean region. BN reproduced seed went to the Arizona, Mississippi and Georgia centers.

Trifolium polystachyum Freas.
PI-271670 as a perennial out of Kenya performed well in the greenhouse. Native to northern Abyssinia, it grows at altitudes between 1800 and 2400 meters. Original seed of this accession went to Florida.

Trifolium pratense L.
'Rea' (R-28), PI-257274 from Sweden, produced abundant foliage of large leaves, but suffered from mildew in our humid climate.

PI-251187, out of Yugoslavia, did not perform as well here as PI-257274.

No distribution was made of either of the above clovers.

Trifolium ruepellianum Fresen.
PI-262237, an annual out of Kenya, E. Africa, produced abundant forage in the greenhouse. The species is cultivated as a forage plant in Abyssinia at elevations between 1800 and 2400 meters. Original seed to Hawaii, Puerto Rico centers.

Trifolium semipilosum Fresen. Kenya white clover.
A prostrate perennial from Kenya, E. Africa. Grows in the fertile soil area above 1800 meters with rainfall in excess of 1,000 mm. per year. Original seed of PI-262238 to Hawaii and Puerto Rico.

Trifolium spadiceum L.
PI-284292 from Turkey couldn't take the humidity and heat in this country and died by August 1 without bloom. This annual species is native to the calcareous soil areas of the high damp moors of the Mediterranean region.

Trifolium steudneri Schweinf.
Native to Abyssinia but introduced into Kenya. A palatable annual, growing at an elevation of 1800 to 3000 meters. PI-262239 was open and rangy in the greenhouse. Hawaii, Puerto Rico and Florida received some of the original seed.

NOTES & COMMENT - Legumes and Other

Trifolium striatum L.
This little Mediterranean annual did OK in the greenhouse in the spring, but passed out quickly with the onset of hot weather in the field. BN reproduced seed of PI-284294 and PI-284295 went to California PMC.

Trifolium supinum Savi
PI-284295 grew to 8x40 inches in the greenhouse, with abundant leaves and stems. It had completed its life cycle and passed out by early June. This accession came to us from Israel, where the species reportedly grows in humid pastures. BN reproduced seed went to California.

Trifolium tembense Fresen.
This fast-growing little annual from Kenya produced abundant seed after blooming during the short days of December in the greenhouse. Several varieties are known in the altitude range of 1800 to 2400 meters in South Africa. Original seed of PI-262240 went to Hawaii and Puerto Rico.

Trifolium tumens Stevi-Bieb.
An annual, native to the desert country of Iran. PI-284297 received from Denmark via Australia produced a limited amount of seed after completing its life cycle by early August. BN reproduced seed went to the Arizona PMC.

Trifolium usambarense Taub.
Annual clover found in tropical Africa from 850 to 2800 meters, adjacent to water or in rainfall areas approaching 1600 mm. or more per year. A valuable component of heavily grazed pastures in the lower altitude high rainfall area. Several accessions of this species have gone to the Southeast region.

Vigna cylindrica (L.) Skeels
PI-286438 from Nepal produced a tremendous amount of foliage for green manure, showed no damage by disease. Started maturing its seed by mid-August. Did not tack at the nodes. We shared our original seed with the Georgia, Hawaii and Florida plant materials centers.

Vigna luteola (Jacq.) Benth.
PI-280131 from British Guiana also produced a large amount of foliage, but tacked at the nodes. Species is found in warmer areas of Peru and Guatemala at altitudes less than 1500 meters, moist or wet coastal thickets. Not distributed.

Zornia dyctiocarpa DC. PI-282568, received as Zornia diphylla.
A low-growing, dryland annual received from Australia. Did not produce much seed at Beltsville.

Zornia muriculata Muhlenbrock PI-282569 Received as Zornia sp.
Started to bloom in October in the greenhouse. A dryland annual, it was dead by December.

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	AGROPYRON										
12086-60	cristatum	277352	USSR	C H P	MA E	MA C	C	June	21-13x10	Jul/Aug	1 gm
12409-61	cristatum	281862	Germ.	C H P	MA E	A C	C	June	15-10x16	Jul/Aug	34 gm
12088-60	desertorum	277354	USSR	C H P	MA E	MA C	C	June	26-12x15	July	13½ oz.
12410-61	junceum	281863	Germ.	C H P	MA E 1/	A C		June	43-23x21	Aug.	75 gm
12411-61	sibiricum	281864	Germ.	C H P	F E	A BC	C	July	24-8x12	Aug/Sept	1 gm
12412-61	trachycaulum	281865	Germ.	C H P	F E	A B	S	July	29-18x15	Aug.	30 gm
	AGROSTIS										
11510-60	alba stolonifera	269838	Germ.	C H P	MA E *	A C	C	June	9-4x24	July	1 gm
6822-49	tenuis v. oregonensis	-	Ore.	C H P	MA E 1/	MA B	C	June	14-7x10	none	
	ALOPECURUS										
11165-59	arundinaceus	264769	Portu.	C H P	F E 1/	F B		Apr.	30-12x10	June	2 gm
11166-59	arundinaceus	264772	Germ.	C H P	MA E	MA B		May	30-18x10	June	21 gm
11167-59	arundinaceus	264822	Italy	C H P	F E 1/	MA B		Apr.	26-11x12	June	1 gm
11168-59	arundinaceus	266108	Czech.	C H P	MA E	A B		Apr.	25-15x12	June	6 gm
11210-59	arundinaceus	264547	Sweden	C H P	MA E 1/	MA B		June	24-12x10	June	1 gm
11909-60	arundinaceus	274903	Germ.	C H P	MA E 1/	A B		Apr.	22-14x12	June	-
10995-59	pratensis	264136	Germ.	C H P	MA E	A B	C	Apr.	27-15x12	June	-
11114-60 & 11742-60	pratensis	-	Nether-lands	C H P	A E 1/	A B	C	Apr.	22-18x18	June	-1gm
11171-59	pratensis	264823	Austral.	C H P	A E	A B		Apr.	27-16x11	June	19 gm
11172-59	pratensis	264771	Germ.		Died winter '62-'63						
11180-59	pratensis	265999	Bulgar.	C H P	MA E	MA B	C	Apr.	24-14x12	June	-
11181-59	pratensis	266000	Bulgar	C H P	A E 1/	A B	C	Apr.	32-18x16	June	-
11182-59	pratensis	266001	Bulgar	C H P	A E 1/	A B	C	Apr.	27-17x12	June	-

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	ALOPECURUS										
11183-59	pratensis	266002	Bulgar.	C H P	A E 1/	A B	C	Apr.	26-18x10	June	-
11184-59	pratensis	266003	Bulgar.	C H P	A E 1/	A B	C	Apr.	30-16x14	June	-
11185-59	pratensis	266005	Yugo.	C H P	A E 1/	A B	C	Apr.	32-15x10	June	-
11186-59	pratensis	266006	Poland	C H P	MA E	MA B	C	Apr.	24-14x14	June	-1 gm
11188-59 & 11198	pratensis	-	Poland	C H P	MA E	A B		Apr/June	30-16x14	June	2 gm
11191-59	pratensis	266053	Belg.		Dead spring '63						
11194-59	pratensis	266088	W.Germ.		Discarded 5/2/63						
11195-59	pratensis	266089	W.Germ.		Dead spring '63						
11196-59	pratensis	266109	Czech.		Destroyed						
11199-59	pratensis	266223	Poland		Winter-killed						
11203-59	pratensis	267049	Netherl.	C H P	MA E 1/	A B	C	Apr.	30-16x12	June	-
11204-59	pratensis	267050	Netherl	C H P	MA E 1/	A B	C	Apr.	30-16x12	June	-
11205-60	pratensis	267052	Poland		Dead spring '63						
11206-60	pratensis	267200	Hungary	C H P	A E 1/	A B	C	Apr.	24-14x11	June	-
11209-60	pratensis	264389	Wales	C H P	A E 1/	A B	C	Apr.	26-15x12	June	
11705-60	pratensis	272103	France	C H P	MA E	A B	C	Apr.	24-11x10	June	
11752-60	pratensis	273320	Netherl	C H P	MA E 1/	A B	C	Apr.	38-16x22	none	
11753-60	pratensis	273321	Netherl	C H P	A E 1/	A B	C	Apr.	30-18x22	none	
11755-60	pratensis	273323	Netherl	C H P	A E 1/	A B	C	Apr.	26-16x20	none	
11756-60	pratensis	273324	Netherl	C H P	MA E 1/	A B	C	Apr.	28-18x22	none	
11757-60	pratensis	273325	Netherl	C H P	A E 1/	A B	C	Apr.	30-16x22	none	
11759-60	pratensis	273327	Netherl	C H P	MA E 1/	A B	C	Apr.	28-16x17	none	
11760-60	pratensis	273328	Netherl		Discarded Spring '63						
11768-60	pratensis	273336	Netherl		Discarded Spring '63						

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BN NO.	SPECIES	PI NO.	ORIGIN	HABIT	STEMS	LEAVES	POLLIN.	BLOOM	MATURE SIZE	SEED COLL.	SEED
	ALOPECURUS										
11770-60	pratensis	273338	Netherl	C H P	MA E	A B	C	Apr.	30-16x14	None	
11771-60	pratensis	273339	Netherl	C H P	A E 1/	A B	C	Apr.	28-15x16	None	
11772-60	pratensis	273340	Netherl	C H P	MA E 1/	A B	C	Apr.	24-16x22	None	
11773-60	pratensis	273341	Netherl	C H P	MA E 1/	MA B	C	Apr.	28-14x22	None	
11778-60	pratensis	273346	Netherl	C H P	MA E 1/	A B	C	Apr.	26-14x22	None	
11779-60	pratensis	273347	Netherl	C H P	A E 1/	MA B	C	Apr.	26-16x22	None	
11780-60	pratensis	273348	Netherl	C H P	MA E	A B	C	May	21-12x14	June	-
11782-60	pratensis	273350	Netherl	C H P	MA E	A B	C	Apr.	27-16x16	June	-
11783-60	pratensis	273351	Netherl		Poor accession - Destroyed						
11784-60	pratensis	273352	Netherl	C H P	A E	MA B	C	May	26-12x14	June	-
11789-60	pratensis	273357	Netherl	C H P	A E 1/	A B	C	June	28-18x16	June	-
11790-60	pratensis	273358	Netherl	C H P	A E	F B	C	Apr.	24-12x20	June	-
11791-60	pratensis	273359	Netherl	C H P	F E	MA B	C	Apr.	27-12x15	May	-
11792-60	pratensis	273360	Netherl	C H P	MA E 1/	MA B	C	Apr.	26-12x17	June	-
11889-60	pratensis	274802	Poland	C H P	A E	MA B	C	Apr.	27-16x12	June	
12499-61	pratensis 'Vetrovska	283176	Czech.	C H P	MA E	A B	C	June	28-9x12	July	1 gm
11178-59	pratensis X ventricosus	265953	Germ.		Died winter '62-'63						
11179-59	pratensis X ventricosus	265954	Germ.		Died winter '62-'63						
	ANDROPOGON										
12503-61	distachyus	283181	Portu.	W T P	A E 1/	A B		July	35-16x12	Aug/Oct	2 gm

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BN NO.	SPECIES	PI NO.	ORIGIN	HABIT	STEMS	LEAVES	POLLIN.	BLOOM	MATURE SIZE	SEED COLL.	SEED
	ARRHENATHERUM										
12305-61	elatius	NY-1797	W.Va.	C H P	A E	A C	C	May	42-23x14	June	84 gm
	BRIZA										
12459-61	erecta	282880	Urug.		Died						
12460-61	fusca	282881	Urug.		Died						
	BROMUS										
12424-61	inermis	'Sac'	ARS	C H P	F E 1/	A C	C	June	41-18x17	July	-
12091-61	inermis	-	Va.	C H P	A E+S 1/	A BC	C	May	41-21x31	July	80 gm
12116-61	macranthus	269644	Argent.	C H P	F E	F BC		Apr.	5-3x2	June	5 gm
12515-61	mollis	283196	Italy	C A	MA E	F BC	S	May	15-8x12	June	75 gm
11516-60	stenostachys	269877	W.Pak.	C H P	F E	F B		May	34-25x8	June	-1 gm
	DACTYLIS										
7073-55	glomerata	'Brage'	N.Y.	C H P	MA E	MA BC	C	June	27-16x14	None	
10387-58	glomerata	Tardus II	Swed.	C H P	MA E	A BC	C	June	27-8x15	None	
11255-59	glomerata	266226	Austral	C H P	MA E	A BC	C	June	27-20x12	None	
11344-60	glomerata	Sandia	N.Mex.	C H P	MA E	A BC	C	June	30-24x16	None	
11532-59	glomerata	270397	USSR	C H P	A E-S	A BC	C	June	19-14x24	None	
13765-60	glomerata v. himalayensis	H-1237	India	C H P	A E	A BC		June	35-26x18	July	45 gm
	DESCHAMPSIA										
12561-61	flexuosa	283244	France	C H P		F B	Dead by July 1963				
12562-61	flexuosa	283245	France	C H P		A B	Dead by Sept. 1963				
12563-61	flexuosa	283246	France	C H P	F E	F B	Dead by Aug. 1963				
	DIGITARIA										
13458-62	herpoclados	281738	Taiwan	W T P	MA P *	MA BC	Feb.	Feb.	10-6x30	Plts sent to Fla.	
13462-61	cf.setivalva	284543	Rhod.		A E *	A BC		July/Sept	47-26x42	Aug/Oct	$3\frac{1}{2}$ oz
13461-61	smutsii	284542	Rhod.	W T P	F E	MA B		Jun/Oct	60-29x20	Aug/Oct	8 gm
10625-58	valida	258442	S.Afr	W T	MA E	MA B		July	54-22x28	Sept/Oct.	1 gm

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BN NO.	SPECIES	PI NO.	ORIGIN	HABIT	STEMS	LEAVES	POLLIN.	BLOOM	MATURE SIZE	SEED COLL.	SEED
	DIGITARIA										
10626-58	valida	258443	S.Afr.	W T	MA E	MA BC		Jun/Aug	53-27x30	Aug/Oct	1 gm
13463-61	sp.	284544	Rhod.		MA S *	MA + F BC		Aug/Sept	50-24x50	Oct	-
	ECHINOCHLOA										
12473-62	polystachya	283157	Mex.		MA S	E C		Dec/Mar	38-34x28	Apr *	-1 gm
	ELYMUS										
8367-57	sabulosus	P-11599	Calif	C H P	MA E 1/	A C		June	36-24x24	July	19 gm
12117-61	sp.	269646	Argent.	C H P	F E	F BC		June	36-15x16	Jul/Aug	41 gm
	FESTUCA										
11500-60	arundinacea	269376	Afghan	C H P	MA S 1/	MA B	C	June	20-4x20	July	53 gm
7302-60	elatior	196920	Denm	C H P	A E	A B	C	June	32-15x14	June	83 gm
12464-62	sp. 'Artren'	F-1079	Fla.	C H P	F E 1/	A B		Jun/Jul	34-11x22	Jun/Jul	6 gm
	HORDEUM										
12677-61	chilense	283374	Chile	C P	MA S	F B		Feb/Mar	16-4x10	Apr/May*	$1\frac{1}{2}$ oz.
12678-61	chilense	283375	Chile	C P	F S-P	MA B		Mar	10-6x12	Apr/Jun*	14 gm
12679-61	chilense	283376	Chile	C P	MA E	F B		May	30-9x9	May/July	24 gm
12680-61	chilense	283377	Chile	C P	F S	MA B		Mar/Apr	13-4x9	Apr/May*	14 gm
12681-61	chilense	283378	Chile	C P	MA E-S	MA B		Apr	24-5x10	Apr/May*	28 gm
12682-61	comosum	283379	Chile	C P	F S	MA B		May	21-9x12	June	14 gm
	ISCHAEMUM										
11599-60	timorense	271193	India	W T P	A P	A C		Jan	---6x8	May*	7 gm
	ORYZOPSIS										
11665-60	aequiglumis	271588	India	P ?	F S	MA BC		July	42-20x20	Aug	5 gm
10954-58	coerulescens	263504	Israel	C H P	F E	MA B		June	28-10x8	June	-1 gm
10955-59	holciformis	263505	Israel	C T P	MA E	MA BC		Apr	28-16x12	May/June	1 gm
8443-57	miliacea	230621	Italy	C T P	MA S	MA B		June	14-3x10	July	6 gm

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	PANICUM										
13102-61	antidotale	284151	India	W T P	MA E	MA C	S	July	63-43x30	Jul/Oct	47 gm
12419-61	maximum 'Sabi'	282454	Rhod.	W T P	A E	A C	A	July	70-42x60	Aug	6 gm
	PENNISETUM										
13488-61	ciliare	284831	S.Afr	W T P	A E	F C		Jun/Aug	15-9x18	July	7 gm
13527-61	ciliare	284828	S.Rhod	W T P	A E 1/	MA C		Jun/Aug	33-21x25	Jul/Sept	8 oz
13528-61	ciliare	284829	S.Rhod	W T P	A E	A C		Jun/Aug	55-38x24	Jul/Sept	10 oz
13530-61	ciliare	284832	Sudan	W T P	A E 1/	A C		Jun/Aug	41-28x40	Jul/Sept	9 oz
13532-61	ciliare	284834	Morocco	W T P	A E	MA C		Jun/Aug	33-24x34	Jul/Sept	6 oz
13533-61	ciliare	284835	India	W T P	A E 1/	A C	A	Jun/Aug	45-32x60	Jul/Sept	12 oz
13534-61	ciliare	284836	Pakis.	W T P	A E	F C		Jun/Aug	20-13x20	Jul/Sept	6 oz
13576-62	ciliare	-	BN sel	W T P	A E 1/	A BC		Jun/Aug	43-48x36	Jul/Oct	2½ lb
13577-62	ciliare	contaminant ex BN-11664		W T P	A E 1/	A C		Jun/Aug	36-30x44	July/Sept	10 oz
13580-62	ciliare	H-1535	India	W T P	A E	A B		Jun/Jul	14-11x28	July/Aug	2 lb
	PHALARIS										
12103-61	aquatica X arundinacea	BN sel	Engl.	C H P	A E 1/	A BC		June	35-24x30	July	23 gm
12104-61	aquatica X arundinacea	BN sel	Engl.	C H P	A E 1/	A BC		June	52-30x34	July	56 gm
	PHLEUM										
11536-59	pratense	270401	USSR	C H P	A E	A BC	C	June	27-20x16	July	4 gm
	POA										
11917-60	nemoralis	274911		Winter-killed							
11706-60	pratensis	'Newport'	Wash.	C H P	A E 1/	A B		May	21-15x16	none	
13766-60	pratensis	H-824-A	India	C H P	MA E 1/	MA B		May	24-8x10	June	11 gm

1/ - Rhizomatous

1963 Grass Plantings - Beltsville, Md.

				C-Cool W-Warm H-Hardy T-Tender P-Peren. A-Annual B-Bienn.	*-Stolon A-Abund. MA-Mod." F-Few E-Erect S-Sub-" P-Pros.	A-Abund. MA-Mod." F-Few B-Basal C-Caul. D-Distr.	S-Self C-Cross A-Apom.	Date	Hd. Ht. x Ht.-Sprd.	*Green- house Period	Amount
BN NO.	SPECIES	PI NO.	ORIGIN	HABIT	STEMS	LEAVES	POLLIN.	BLOOM	MATURE SIZE	SEED COLL.	SEED
	SEHIMA										
13606-60	ischaemoides	H-1599	India	C T P	A E	MA BC		Nov/Feb	32-24x18	Jan/Feb*	3 gm
	SPARTINA										
10740-58	townsendi	260792	Engl.	P	MA F 1/	MA B					
	STIPA										
11228-61	diegonensis	264408	Argent.	W P	F E	F BC	Died without bloom				
11230-61	ibari	264410	Argent.	P	F E	F B	Died by August 1963				
12374-61	neaei	281601	Argent.	W P	F E-S	F B		July	17-6x12	No fill	

1963 Plantings - Legumes and Other - Beltsville, Md.

				C-Cool W-Warm H-Hardy T-Tender P-Peren. A-Annual B-Bienn.	*-Stolon. A-Abund. MA-Mod." F-Few E-Erect S-Sub-" P-Pros.	A-Abund. MA-Mod." F-Few B-Basal C-Caul. D-Distr.	S-Self C-Cross A-Apom.	Date	Ht.-Sprd.	*Green-house Period	Amount
BN NO.	SPECIES	PI NO.	ORIGIN	HABIT	STEMS	LEAVES	POLLIN.	BLOOM	MATURE SIZE	SEED COLL.	SEED
12482-61	ADESMIA smithiae	283159	S.Amer	A	F P	F D	S	Apr.	1x12	*May/Jun	2 gm
12504-61	ANTHYLLIS vulneraria	283184	Portu	P	F P	A D	C	Apr/Jul	4x17	*May/Jun	13 gm
10589-58	ASTRAGALUS sinicus	258377	Taiwan	P	A S	A D	C	Dec/Mar	13x54	*Feb/Mar	2 gm
10591-58	CLITORIA ternatea	258379	Taiwan	P	F P	MA D	S	Dec/Mar	4x48	*Mar/Jul	13 gm
12557-61	CORONILLA glauca	283239	Portu	P	MA E	MA D		Did not bloom			
10592-58	DESMODIUM intortum	258380	Taiwan	W T A	A S-P	A D		none	7x54		
6699-49	triflorum	188882	C.Amer.	W T P	A P *	A D	S	Jan	2x44	*Feb	0
11887-60	DORYCNIUM rectum	274460	Greece	P	A E-S	A D		June	40x42	July	1 gm
12556-61	GALEGA officinalis	283238	USSR	P	MA E-S	A D		Jul/Aug	15x40	Sept.	27 gm
12683-61	HOSACKIA subpinnata	283469	Chile	A	A P	A D	S	Mar/Apr	2x18	*May	16 gm
11059-62	LATHYRUS venosus v. meridionalis	NC-62-2	Tenn.	W H P	A E-S	A D		May	12x39	July	2 gm
12823-61	LOTUS conimbricensis	283616	Sweden	C A	A P	A D	S	Apr.	2x20	June	84 gm
12824-61	conjugatus	283617	Hungary	C A	MA P	MA D	S	May	2x38	*June	30 gm

1963 Plantings - Legumes and Other - Beltsville, Md.

				C-Cool W-Warm H-Hardy T-Tender P-Peren. A-Annual B-Bienn.	*-Stolon. A-Abund. MA-Mod." F-Few E-Erect S-Sub-" P-Pros.	A-Abund. MA-Mod." F-Few B-Basal C-Caul. D-Distr.	S-Self C-Cross A-Apom.	Date	Ht.-Sprd.	*Green- house Period	Amount
BN NO.	SPECIES	PI NO.	ORIGIN	HABIT	STEMS	LEAVES	POLLIN.	BLOOM	MATURE SIZE	SEED COLL.	SEED
	LOTUS										
12833-61	cytisoides	283626	France	P	A P	A D		Apr.	2x28	Winterkilled	
12834-61	edulis	283627	Tunisia	A	MA P	MA D	S	Mar.	2x40	*May/Jun	52 gm
12822-61	hispidus	283615	Hungary	A	A P	A D		Jul/Aug	2x18	Aug	67 gm
12837-61	hispidus	283630	Hungary	P	A S-P	A D	C	Jul/Aug	6x27	Blasted	
12835-61	maroccanus	283628	Morocco	P	A P	A D	C	Jun/Aug	7x15	June	2 gm
12836-61	maroccanus	283629	Morocco	P	A P	A D	C	May/Oct	4x20	Jun/Oct	41 gm
	LUPINUS										
10191-61	albus	255375	Yugo.	A	Fall seeded and winter-killed.						
10729-59	angustifolius	'Blanco'	FC,ARS	A	Fall seeded and winter-killed.						
10730-59	angustifolius	'Florida'	FC,ARS	A	Fall seeded and winter-killed						
12365-61	angustifolius	280627	Poland	A	F E	MA D	S+C	June	24x18	July	116 gm
10194-61	luteus	255378	Yugo.	A	Fall seeded and winter-killed						
12367-61	palaestinus	280629	Poland	A	F E	MA D		Apr.	12x8	Jun/Jul	66 gm
12366-61	reticulatus	280628	Poland	A	F E	MA D		May	17x14	July	114 gm
	MEDICAGO										
12846-61	arabica	283639	USSR	A	A P	MA D	S	Mar	2x26	*Apr.	19 gm
12865-61	scutellata	283659	Cyprus	A	MA P	MA D	S	Jan/Feb	3x30	*Mar/Apr	54 gm
12866-61	tianschanica	283660	USSR	W H P	MA E-S	A D		Jul/Aug	12x18	Aug/Sept	3 gm
10160-55	turbinata	230350	Iran	A	MA S	MA D	S	Feb	3x22	*Apr	33 gm
	STYLOSANTHES										
10593-58	gracilis	258382	Taiwan	P	MA S-P	MA D		None	6x24		
10787-59	gracilis	261266	Congo	P	MA S-P	MA D		None	5x24		
10711-58	sundaica	260240	Austral	A	A S-P	A D		Dec	2x18	*Feb	0

1963 Plantings - Legumes and Other - Beltsville, Md.

				C-Cool W-Warm H-Hardy T-Tender P-Perenn. A-Annual B-Bienn.	*Stolon. A-Abund. MA-Mod." F-Few E-Erect S-Sub-" P-Pros.	A-Abund. MA-Mod." F-Few B-Basal C-Caul. D-Distr.	S-Self C-Cross A-Apom.	Date	Ht.-Sprd.	*Greenhouse Period	Amount
BN NO.	SPECIES	PI NO.	ORIGIN	HABIT	STEMS	LEAVES	POLLIN.	BLOOM	MATURE SIZE	SEED COLL.	SEED
	TRIFOLIUM										
12956-61	alpestre	283998	USSR	P	MA S	A D		8/12	5x8	none	
12985-61	arvense	284027	Turkey	A	MA P	MA D	S	Mar/Apr	2x15	*June	42 gm
10850-56	baccarini	262233	Kenya	A	A P	A D	S	Jan	2x26	*Feb/Apr	49 gm
10852-58	burchellianum v. johnstonii	262234	Kenya	P	A P	A D		-	2x22	Died without bloom	
13247-61	canescens	284296	USSR	P	F E	MA D		Jul	4x12	Aug	1 gm
10851-59	cheranganiense	262235	Kenya	W T P	MA P	MA D		Jan/Jul	3x30	*Apr/May	6 gm
12355-61	dubium	280260	Spain	A	A S	MA D	S	Mar/Jun	5x28	*Apr/Jul	16 gm
13219-61	glomeratum	284268	S. Amer	A	A P	A D	S	Apr.	1x24	*June	60 gm
10392-58	hybridum 'Tetra'	257273	Sweden	W H P	MA S	A D	C	Aug.	8x24	Aug/Oct	9 gm
13227-61	hybridum	284276	Turkey	W H P	A S	MA D	C	Jul.	6x32	July	14 gm
13209-61	lappaceum	284258	Israel	A	MA S	MA D	S	Feb/Apr	7x22	*April	62 gm
13493-61	maritimum	284855	Austral	A	F P	F D		May	1x6	June	2 gm
10853-54	masaiense	262236	Kenya	A	A P	A D	S	Jan.	2x34	*April	59 gm
13236-61	pallidum	284285	Algeria	A	MA S	MA D		July	All dead by August 9		
**13250-61	parviflorum	284299	Hungary	A	A P	A D	S	Apr/May	4x12	*Jun/Jul	29 gm
13237-61	patens	284286	Denmark	A	MA S	MA D	S	Apr.	6x38	June	53 gm
11672-60	polystachyum	271670	Kenya	P	MA S	MA D	C	Mar	8x50	*Apr/May	1 gm
10393-58	pratense 'Rea'	257274	Sweden	B	A E-S	A D	C	Jul/Aug	16x24	Sept/Oct	9 gm
10854-58	rueppellianum	262237	Kenya	A	A S	A D	S	Mar	6x32	*April	61 gm
10855-58	semipilosum	262238	Kenya	P	A S	A D	C	Jan	6x30	*May/June	7 gm
13243-61	spadiceum	284292	Turkey	A	A S	A D		Died by August 1, 1963			
**13251-61	parviflorum	284300	Sweden	A	A P	A D	S	Apr/May	3x14	*Jun/July	29 gm

1963 Plantings - Legumes and Other - Beltsville, Md.

				C-Cool W-Warm H-Hardy T-Tender P-Peren. A-Annual B-Bienn.	*-Stolon. A-Abund. MA-Mod." F-Few E-Erect S-Sub-" P-Pros.	A-Abund. MA-Mod." F-Few B-Basal C-Caul. D-Distr.	S-Self C-Cross A-Apom.	Date	Ht.-Sprd.	*Green-house Period	Amount
BN NO.	SPECIES	PI NO.	ORIGIN	HABIT	STEMS	LEAVES	POLLIN.	BLOOM	MATURE SIZE	SEED COLL.	SEED
	TRIFOLIUM										
10856-59	steudneri	262239	Kenya	A	F P	F D	S	Dec/Jan	3x18	*Feb/Mar	11 gm
13244-61	striatum	284293	Portu	A	MA E-S	A D		May	3x9	June	-1 gm
13245-61	striatum	284294	Morocco	A	MA E-S	MA D		Apr	3x7	June	3 gm
13246-61	supinum	284295	Israel	A	A S	A D	C	Apr/May	8x40	*June	3 gm
10857-59	tembense	262240	Kenya	A	A P	MA D	S	Dec.	3x14	*Jan/Feb	28 gm
13248-61	tumens	284297	Denm.	A	MA P	MA D		June	2x18	July	1 gm
10858-59	usambarense	262241	Kenya	A	A P	A D	S	Jan/Apr	4x30	Feb/May	7 gm
	VIGNA										
13608-62	cylindrica	286438	Nepal	A	A P	A D		Aug.	14x28	Aug.	114 gm
12368-61	luteola	280131	Br.G'ana	P ?	A S-P	A D		Aug.	5x31	Aug.	92 gm
	ZORNIA										
12440-61	dyctiocarpa	282568	Austral	A	MA P	F D		Aug.	5x26	Sept.	1 gm
12441-61	muriculata	282569	Austral	A	MA S	MA D		Nov.	2x12	*Nov/Dec	6 gm

REED CANARYGRASS ASSEMBLY

Beltsville, Md.

This comparison planting of reed canarygrass accessions was established in the spring of 1962 in a wet, moderately heavy soil area. Most of the plants were transplanted to this location from other fields in the nursery. The performance of many of them has been reported in previous Annual Reports, but this consolidated assembly better indicates their performance at Beltsville under comparable conditions. It is hoped that this assembly will provide a ready reference to our assembly of reed canary grass accessions, and help you in your selection of specific types.

Several of you have expressed interest in the low-growing strains for low velocity grassed waterway and flood channel stabilization as well as for potential pond shoreline stabilization. Four of these numbers, PI-234694, PI-234696, PI-235485, and PI-235551, were included in this test. We also had trouble with seed production on these but would like to point out that several other accessions did produce seed and still did not attain the rank vegetative growth characteristic of the hay and pasture types. For instance, PI-235546 and PI-251842 could be considered in this category.

For those of you interested in the hay and pasture types, PI-234697, 235482, 253317 and 272123 looked good at Beltsville.

The size of each accession taken on October 7 does not represent recovery after cutting as only the seed heads and stalks were cut off following maturity. This is a comparison figure representing fall aspect and spread during the 1963 growing season. The leaf width recording is a visual observation and not an average measurement.

BN-10212, 'Arkansas Upland' was used as standard.

Reed Canarygrass Assembly
Beltsville, Md.

Legend: Stems: A-Abundant; MA-Moderately abundant; F-Few - M-Medium; F-Fine; C-Coarse
Leaves: A-Abundant; MA-Moderately abundant; F-Few - B-Basal; C-Cauline
Leaf Width: N-Narrow; M-Medium; W-Wide --- Leaf Disease: Mod-Moderate; Sev-Severe; Sl-Slight; O-none
Spring Recovery: E-Early - A-Abundant; MA-Moderately abundant; S-Sparse
Mature size: Head height-Leaf height x spread
Size 5/16/63 and 10/7/63 - Leaf height x spread

BN No.	Other Nos.	Variety	Origin	Stems	Leaves	Leaf Width	Leaf Disease	Spring R'cvry	Size 5/16/63	Bloom Date	Date Mature	Mature Size	Size 10/7/63
10212	FC-34266	Ark. Upl'd	FC,ARS	A - M	MA - C	M	Mod.	E - A	16x18	6/6	7/8	42-28x22	31x36
4595	P-329	-	Wash.	A - M	A - C	W	Sev.	E - A	36x20	6/1	7/8	54-38x24	34x35
9176	P-2369-254		Cal.	A - M	MA - C	W	Sl.	E - A	24x20	6/3	7/8	50-36x18	29x35
9356	PI-227670		Iran	F - M	MA - C	W	Sl.	E - A	36-25x16	5/16	7/8	40-24x20	28x35
9360	PI-237724		Germ.	MA - M	F - C	W	Sl.	E - A	22x15	6/6	7/8	52-34x25	28x31
9683	PI-234694		Den.	F - F	A - BC	M	0	E - MA	6x16	7/8-7/30	0	23-14x21	15x27
9684	PI-234695		Den.	F - M	MA - BC	W	0	E - MA	13x14	6/6-7/8	7/14	41-30x24	25x32
9685	PI-234696		Den.	F - M	MA - B	W	Sev.	E - MA	6x13	0	0	-18x22	18x27
9686	PI-234697		Den.	MA - M	A - BC	N	0	E - MA	14x20	6/1	7/8	40-24x38	15x34
9687	PI-234698		Den.	MA - F	F - C	N	Sl.	E - MA	8x16	6/12	7/8	42-24x28	20x32
9688	PI-234780		Germ.	A - M	MA - C	W	Mod.	E - A	26x20	6/1	7/8	54-36x22	27x34
9689	PI-234790		Swed.	MA - F	F - C	N	Sl.	E - S	6x13	6/6-7/8	7/14	39-24x20	28x26
9690	PI-235023		Germ.	A - F	A - C	N	Mod.	E - MA	14x13	6/15	7/8	48-30x28	28x34
9691	PI-235482		Switz	A - C	A - BC	W	Mod.	E - A	21x15	6/6	7/8	50-30x28	31x39
9692	PI-235483		Switz	A - M	A - BC	W	Sl.	E - MA	10x16	6/1	7/8	48-26x34	22x38
9693	PI-235484		Switz	MA - M	MA - BC	W	Mod.	E - Ma	13x20	6/6	7/8	42-25x39	31x35
9694	PI-235485		Switz	A - F	A - BC	N	Sl.	E - MA	13x14	0	0	-20x35	15x35
9695	PI-235546		Swed.	A - M	A - BC	W	Mod.	E - MA	14x14	5/20-6/1	7/8	38-25x20	21x23
9696	PI-235547		Swed	F - F	F - BC	M	Sl.	E - MA	8x13	6/20-7/16	8/10	22-20x20	22x24
9697	PI-235551		Denm	A - M	A - B	W	Sl.	E - A	13x18	0	0	-22x26	16x31
9739	PI-172443		Turk.	A - M	A - C	W	Sl.	E - A	29x23	6/6	7/8	48-30x22	33x46
9864	-		Swed.	A - M	MA - C	M	Sev.	E - MA	18x15	6/6	7/8	41-25x23	23x36
10213	FC-33744	Ottawa Syn#2	FC, ARS	MA- M	A - BC	W	Mod.	E - MA	13x20	6/6	7/8	42-29x26	23x34

Reed Canarygrass Assembly
Beltsville, Maryland

BN No.	Other Nos.	Variety	Origin	Stems	Leaves	Leaf Width	Leaf Disease	Spring R'cvry	Size 5/16/63	Bloom Date	Date Mature	Mature Size	Size 10/7/63
10214	FC-33964	S.Joaquin	FC,ARS	A - F	MA - BC	M	Sl.	E - A	15x18	5/20-6/1	7/8	44-30x34	26x38
11264	PI-251842		Austria	F - F	F - BC	M	Sl.	E - MA	8x18	6/1	7/8	28-19x21	14x29
11265	PI-253315		Yugo.	F - M	F - BC	M	Mod.	E - MA	10x10	6/1	7/8	41-26x22	22x28
11267	PI-253317		Yugo.	A - M	A - BC	M	Sl.	E - A	24x18	5/20-6/1	7/1	55-34x26	30x38
11268	PI-255887		Poland	A - F	MA - BC	W	Sl.	E - A	22x11	6/6	7/8	48-30x20	19x36
11702	PI-272122	Motycka	Poland	MA - M	MA - BC	W	Sl.	E - A	12x18	6/6	7/8	47-33x26	23z32
11703	PI-272123	Nakielska	Poland	A - M	A - BC	M	Mod.	E - A	19x13	5/16	7/8	48-25x20	27x35
*12465	F-1208		Florida	MA - M	MA - C	M	Mod.	E - A	18x14	6/1	7/8	47-28x24	23x30
*12468	MS-234		Tenn.	MA - M	MA - C	M	Sl.	E - A	10x10	6/1-7/1	7/8-7/20	41-25x20	17x32

* - Received as young plants, fall of 1962

1963 COMPARISON STUDY - SORGHASTRUM NUTANS

Beltsville, Maryland

Legend

Stems: A-Abundant; MA-Moderately Abundant; F-Few
F-Fine; M-Medium; C-Coarse

Leaves: A-Abundant: MA-Moderately Abundant
H-Harsh; M-Medium
B-Basal; C-Cauline
L-Lax; U-Upright

Leaf Disease: M-Moderate; S-Severe; Sl-Slight

Spring Recovery: E-Early
A-Abundant; MA-Moderately abundant
S-Sparse

Size (inches) 6/17/63: Height x Spread

Mature Size (inches): Head height-Height x Spread

* - native collection

BN No.	Other Nos.	Variety	Origin	Stems	Leaves	Leaf Disease	Spring R'cvry	Size 6/17/63	Bloom Date	Date Mature	Mature Size
3390-59	KG-494	-	BN rep.	A/M	A/H/BC/LU	M	E/MA	19x26	8/27-9/6	10/16	50-33x20
5102-61	PM-K-129 T-15245	Cheyenne	Okla.	A/M	MA/H/BC/U	M	E/MA	23x30	8/27	10/16	82-46x22
6973	M2-10302	Tama	Mo.	MA/M	MA/H/BC/U	M	E/MA	26x23	8/12-8/27	9/6-10/16	50-34x22
10804	-	-	Md.*	MA/F	MA/H/BC/U	M-S	E/S	20x20	8/27-9/6	10/16	44-29x19
8373-	A-3810	Conejo	N.Mex	A/C	MA/H/BC/L	M	E/A	30x29	8/27	9/27-10/10	72-44x25
9054-61	-	-	W.Va.	A/M	A/H/BC/L	M	E/MA	26x30	7/31-8/27	9/6-9/28	59-32x27
11509-60	NY-1671	-	W.Va.	F/F	MA/H/B/L	M	E/S	16x23	8/27-9/6	9/27-10/16	50-25x25
12268-60	-	Chico	Colo.	A/M	MA/M/B/U	Sl	E/S	13x14	7/31-8/27	9/15-9/27	48-18x18
12269-61	PM-NM-275	Llano	N.Mex	A/M	MA/H/BC/L	M	E/S	24x22	9/6-9/27	10/6-10/25	70-30x20
12270-59	PM-K-111	Holt	Nebr.	A/F	A/M/B/L	S	E/A	18x29	7/20-7/31	9/6-9/27	44-22x29
12271-61	-	Ford	Kans.	A/M	MA/M/BC/L	M	E/MA	23x24	8/27-9/6	10/10-10/16	60-26x20
12272-61		Syn #2	Kans.	A/F	A/H/BC/L	M	E/A	26x30	8/27-9/27	10/16-11/1	58-32x22
12273-61	PM-K-93	Pawnee	Kans.	A/M	A/H/B/L-U	M	E/A	24x30	8/12-9/6	9/27-10/16	64-29x20
12274-61	PM-K-113	-	Kans.	F/F	MA/M/B/U	S	E/MA	16x18	9/6-9/15	10/2-10/16	40-17x40
12275-61	PM-O-53	Kneebone's	Okla.	MA/C	A/H/BC/L	Sl-M	E/A	17x18	9/6-9/20	10/16-10/25	53-20x18
12315-61	-	Western Nebr.54	Nebr.	MA/M	MA/M/BC/U	S	E/S	18x17	8/27-9/6	9/27-10/16	45-22x14

LESPEDEZA SEED RENEWAL BLOCK

1963----Beltsville, Maryland

BN NO.	SPECIES	OTHER NOS.	ORIGIN	TRANSPL'T DATE	SURVIVAL SPR. '63	MATURE SIZE	DATE MATURE	AMOUNT SEED
11400-61	cuneata	-	BN sel.	6/1/62	90%	3x23	10/21	1#, 13 oz
1129-47	daurica	PI-89107	China	7/3/62	90%	* 17x28 5x36	9/9	5#, 9 oz
3912-52	daurica	PI-151357	China	6/4/62	70%	* 22x35 7x35	10/10	7#, 4 oz
213-50	daurica shimadai	-	SCN, N.C.	6/15/62	90%	9x37	10/4	6#, 13 oz
9005-56	daurica shimadai	KL-4	PMC, Kans.	6/4/62	80%	5x42	10/3	6#, 4 oz
3271-52	hedysaroides	PI-111202	France	7/3/62	90%	27x28	10/4	6#, 15 oz
4948-49	hedysaroides	PI-163093	China	6/15/62	90%	22x29	10/21	4#, 13 oz
7643-51	hedysaroides	M2-11406	SCN, Ames	7/16/62	90%	25x36	10/3	9#, 9 oz
12112-61	X intermixta	NC-61-9	N.C. Sel.	5/18/62	90%	24x50	10/22	10 oz
111-52	latissima	-	SCN, N.C.	6/4/62	35%	6x23	10/21	3 oz
1139-52	latissima	FC-21238	Hillculture	7/16/62	10%	6x24	10/21	24 gm
1179-52	latissima	FC-19286	Arl.Farm	6/4/62	50%	5x12	10/21	1#, 2 oz
4353-46	latissima	-	SCN, S.C.	6/15/62	20%	6x14	10/22	3-1/2 oz
14769-63	latissima	-	NPMC blend	6/15/62	30%	9x25	10/21	1#, 9 oz
14770-61	latissima	-	NPMC blend	6/4/62	80%	9x36	10/21	2#, 5 oz
9251-60	pilosa	PI-246771	Japan	5/28/62	0	-	-	-------

*Two distinct types.

1963
Grass Seed Renewals
Beltsville, Maryland

BN No.	Name	PI No.	Origin		Amount
	AGROPYRON				
1330	cristatum	109012	Turkey		4 gm
9726	trichophorum	220498	Afghanistan		46 gm
	ALOPECURUS				
9734	arundinaceus	229524	Iran		2 gm
	ANDROPOGON				
311	gerardi	KG-1262	Kansas		2 gm
9703	gerardi	NY-1284	New Hampshire		29 gm
	ARRHENATHERUM				
7154	elatius	194699	Netherlands		57 gm
12305	elatius	NY-1797	West Virginia		84 gm
6284	thorei	186281	Portugal		55 gm
	BOTHRIOCHLOA				
11930	insculpta	275083	India		2 gm
4780	ischaemum	161669	China		6 gm
11476	ischaemum	268361	Afghanistan		2 gm
	BRACHYPODIUM				
8276	pinnatum	206545	Greece		9 gm
10148	pinnatum	230113	Iran		3 gm
	BROMUS				
9936	mollis	254877	Iraq		2 gm
8693	polyanthus	238248	Netherlands		3 gm
11439	sp.	268219	Iran		3 gm
	CENCHRUS				
11576	setigerus	271141	India		8 oz
	ERAGROSTIS				
8605	curvula	234558	Chile		29 gm
	FESTUCA				
3687	arundinacea	150156	Australia		8 oz
6620	arundinacea	174210	Turkey	(isolated)	83 gm
8491	arundinacea	233237	Israel	(isolated)	7 gm
11417	arundinacea	269850	Tunisia	(isolated)	5 gm
4965	elatior	163463	Finland		11 gm
6717	elatior 'Sena	188900	Sweden	(isolated)	10 gm

1963
Grass Seed Renewals
Beltsville, Maryland

BN No.	Name	PI No.	Origin	Amount
	FESTUCA			
2909	ovina	115358	USSR	39 gm
11448	ovina	268234	Iran	15 gm
6578	rubra 'S-59'	-	Wales	9 gm
7313	rubra 'Reptans'	189285	Finland	59 gm
8030	rubra	237802	Spain	43 gm
12010	rubra	-	Pennsylvania	33 gm
11511	rubra littoralis	269839	Germany	3 gm
	HORDEUM			
7193	bulbosum	199460	Israel	3 gm
8014	bulbosum	-	Spain	4 oz
10043	bulbosum	204579	Turkey	3 oz
11916	bulbosum	274910	Turkey	6 oz
7833	murinum	200400	Israel	9 oz
	KOELERIA			
6326	polonica	186323	Sweden	7 gm
	LEPTOCHLOA			
8249	monostachya	207633	Southern India	17 gm
	LOLIUM			
7288	multiflorum	196538	Italy (isolated)	1#, 3 oz
11890	multiflorum	274638	Poland	5½ oz
4736	multiflorum X perenne	161359	New Zealand	15½ oz
	PANICUM			
2258	amarulum	-	Virginia	1#, 4 oz
8360	amarulum	-	Virginia	10#
8354	virgatum	-	Arkansas	1#
8574	virgatum		New Jersey	16#
8624	virgatum	SC-56-32	North Carolina	1#, 6 oz
10864	virgatum	-	NPMC blend	9#, 12 oz
11361	virgatum	-	BN selection	1#, 2 oz
9195	virgatum v. cubense		North Carolina	11#
11357	virgatum v. cubense		North Carolina (isolated)	7 gm
	PASPALUM			
11573	notatum	cold hardy selection ex 'Wilmington'		9 gm

1963
Grass Seed Renewals
Beltsville, Maryland

BN No.	Name	PI No.	Origin		Amount
	PENNISETUM				
11381	alopecurus	269235	India		42 gm
9852	ciliare 'Biloela'	284837	Tanganyika		12 oz
9854	ciliare 'Gayndah'	284838	Uganda		1#, 2 oz
9855	ciliare 'West Australia'	284839	India via Australia		6½ oz
	PHALARIS				
9948	aquatica	254903	Iraq		30 gm
10873	aquatica		BN selection		96 gm
11256	aquatica	266227	Portugal		4 gm
11269	aquatica	207961	S. Africa		92 gm
11270	aquatica	207968	S. Africa		88 gm
10379	aquatica X arundinacea	256956	Argentina		3 gm
9691	arundinacea	235482	Switzerland		5 gm
9695	arundinacea	235546	Sweden	(isolated)	5 gm
11702	arundinacea 'Motycka'	272122	Poland		10 gm
9958	minor	220033	Afghanistan		96 gm
	PHLEUM				
6719	pratense 'Omnia'	188902	Sweden		2 gm
6774	pratense	189166	Netherlands		19 gm
10390	pratense 'Kempe II'	257271	Sweden		18 gm
11891	pratense	274643	Poland		97 gm
	POA				
11109	pratense 'Prato'	266209	Netherlands		8 gm
	SECALE				
11918	montanum	274912	Turkey		40 gm
	SETARIA				
9272	sphacelata	247411	Congo		4 gm
	SPOROBOLUS				
7596	fimbriatus	198597	S. Africa		6½ oz
	STIPA				
3359	splendens	147820	China		76 gm

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1963
Legume Seed Renewals
Beltsville, Maryland

BN No.	Name	PI No.	Origin	Amount
	CROTOLARIA			
6943	bagamoyensis	192957	E. Africa	1 gm
11960	medicaginea	275319	India	2 gm
	CYTISUS			
8546	praecox	-	Arnold Arboretum	64 gm
	DESMODIUM			
4140	affine	153698	Haiti	17 gm
	DIANTHUS			
10880	deltoides		Commercial	49 gm
	INDIGOFERA			
5608	patens	172278	S. Africa	4 gm
5609	cf. pruinosa	172276	S. Africa	2 gm
10774	pseudotinctoria	ex198051	BN selection	1#, 10 oz
5008	sp.		Puerto Rico	1 gm
	LATHYRUS			
6038	latifolius v. splendens		Colorado	87 gm
2753	sylvestris	P-7055	Washington	11 gm
	** LESPEDEZA			
2279	bicolor 'Natob'	-	China, via Morton Arboretum	4#
11572	bicolor 'Natob'		" " "	8½ oz
12307	capitata	NY-1862	Massachusetts	105 gm
8569	cuneata		N. Carolina	1#, 3/4 oz
**9249	cuneata	246769	Japan	6#, 6 oz
14651	cuneata	-	Polycross selection	1#, 13 oz
9250	X intermixta	246770	Japan	6#
12112	X intermixta	NC-61-9	K. Graetz selection	10 oz
*10849	cuneata		BN selection	2#, 9 oz
	LOTUS			
8580	edulis	244281	Spain	28 gm
6906	pedunculatus	190633	New Zealand	2 gm
	LUPINUS			
9322	perennis	-	Wildling at NPMC	81 gm
	MEGICAGO			
6985	sativa	M2-11040	SCN, Ames, Iowa	1 gm

** For other <u>Lespedeza</u> seed increases, see chart, Page 34

1963

Legume Seed Renewals
Beltsville, Maryland

BN No.	Name	PI No.	Origin	Amount
	SANGUISORBA			
9017	minor		Commercial	2 #
	TRIFOLIUM			
11557	pratense	251187	Yugoslavia	14 gm
11466	purseglovei	268341	Africa	4 gm
11469	usambarense	268344	S.Africa	5 gm
11470	usambarense	268345	S.Africa	5 gm
11471	usambarense	268346	Congo	3 gm
11472	usambarense	268347	Congo	5 gm
11473	usambarense	268348	Congo	3 gm
	VICIA			
6134	cracca	(234266 (NY-546	New York	1 gm
7553	cracca	198260	Canada	1 gm
4598	tenuifolia	P-692	Washington	2 gm

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National Plant Materials Center

Domestic Distribution of Seed in 1963

Genera	Number of Genera Distributed to:				
	Corn-Belt	Great Plains	North-east	South-east	West-ern
Adesmia					13
Aeschynomene				1	
Agropyron	12	4	4		4
Agrostis	2		4		1
Albizza					1
Alopecurus			1		
Alysicarpus				3	
Andropogon			3	2	
Apluda				1	1
Arachis				18	9
Argemone				1	
Aristida		1		2	1
Arrhenatherum			5		
Astragalus				9	8
Astrebla					1
Avena					2
Bothriochloa			1	3	
Bouteloua			2		
Brachiaria				3	
Brachypodium			3		4
Bromus	21	8	7	13	42
Buchloe					2
Calamagrostis			2		
Calapogonium					6
Canavalia				1	
Cenchrus		1		2	11
Chloris				31	36
Chrysopogon				6	15
Clitoria	7				
Coronilla		1			
Crotalaria					1
Cucurbita				6	
Cymbopogon				1	
Cynosurus					1
Dactylis	4	10	4		13
Danthonia					1
Desmanthus				1	5
Desmodium				3	2
Dicanthium				1	
Digitaria				6	5
Dolichos				1	6
Echinochloa				1	4
Ehrharta					1

National Plant Materials Center

Domestic Distribution of Seed in 1963

Genera	Number of Genera Distributed to:				
	Corn-Belt	Great Plains	North-east	South-east	West-ern
Elymus	4	3	5		8
Elyonurus					1
Elytrigia					2
Eragrostis		1	1	10	8
Eriachne					1
Exomis					1
Festuca	7	3	51		16
Glycine					4
Hedysarum					13
Hordeum	32				39
Hosackia		5			10
Hyparrhenia					12
Indigofera				4	1
Ixophorus				1	
Juncus					1
Koeleria	1		1		3
Lathyrus	18		2	1	48
Lespedeza			8	2	2
Leucaena				2	2
Lolium	5		15	5	5
Lonicera	1				
Lotononis				1	1
Lotus	13	1	4	5	2
Lupinus				11	5
Medicago			10	114	12
Onobrychis					23
Ophiopogon					1
Ornithopus	9			15	
Oryzopsis				1	6
Panicum			10	20	4
Pappophorum					1
Paspalum	1			7	1
Pennisetum				30	98
Phalaris	3	1	3	3	57
Phleum	6		10		14
Poa	4		15	1	17
Psoralea				5	
Pueraria					3
Rosa	1				
Secale					9
Sesbania					1
Setaria				8	2
Sorghum				5	1

National Plant Materials Center

Domestic Distribution of Seed in 1963

Genera	Number of Genera Distributed to:				
	Corn-belt	Great Plains	North-east	South-east	Western
Sporobolus			1		
Stipa		4		25	3
Stylosanthes				4	
Teramnus		7			2
Trifolium	19		10	259	28
Tripsacum			1		1
Vicia				605	77
Vigna				2	13
TOTAL	170	50	183	1,445	755

Total Genera	94
Total Number of Packets	2,603

National Plant Materials Center

Domestic Distribution of Vegetative Material in 1963-1964

BN No.	Species	Amount
13880	Agrostis sp. PI-289641	seedlings
13881	Agrostis sp. PI-289642	seedlings
13882	Agrostis sp. PI-289643	seedlings
11046	Ajuga reptans	350
9026	Ammophila breviligulata	353,500
4198	Cynodon dactylon 'Tufcote'	148 sq. ft.
9373	Cytisus supinus	20
12560	Dactylis voronovii PI-283243	seedlings
12402	Dianthus deltoides	50
13459	Elaeagnus umbellata	60
13460	Elaeagnus umbellata	160
13890	Festuca sp. PI-289652	seedlings
13894	Festuca sp. PI-289656	seedlings
10762	Liriope graminifolia	675
13598	Malus baccata gracilis	80
13600	Malus robusta percicifolia	8
8553	Panicum amarum	500
12335	Pinus thunbergii PI-280056	250
8609	Polygonum cuspidatum compactum	20
11030	potentilla tridentata	300
11360	Quercus acutissima PI-142294	500
9229	Robinia pseudoacacia	112 + surplus roots
9230	Robinia pseudoacacia	surplus roots
9282	Robinia pseudoacacia	87 + surplus roots
12312	Robinia pseudoacacia	102 + surplus roots
12313	Robinia pseudoacacia	69 + surplus roots
12314	Robinia pseudoacacia	96 + surplus roots
13559	Rosa wichuraiana	103
13604	Salix gilgiana	15 h/w cuttings
10886	Thymus serpyllum	350
14529	Trifolium medium PI-241117	Clonal material
14733	Trifolium medium G-13238	Clonal material
144	Tripsacum dactyloides	200
10985	Veronica officinalis	50

Bulk Seed Shipments

BN No.	Name	
8379	Lespedeza bicolor 'Natob'	17½ #
10401	Lespedeza cuneata	5 #
10403	Lespedeza cuneata	5#
9250	Lespedeza X intermixta	5#
3532	Lespedeza japonica intermedia	2#
8360	Panicum amarulum	59½#
8354	Panicum virgatum	6#
8574	Panicum virgatum	19#
8624	Panicum virgatum	12#
10864	Panicum virgatum	30#
9195	Panicum virgatum v. cubense	10#
14638	Quercus acutissima	34#

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